

Effects of support on stress and burnout in school principals

Citation for published version (APA):

Beusaert, S., Fröhlich, D., Devos, C., & Riley, P. (2016). Effects of support on stress and burnout in school principals. *Educational Research*, 58(4), 347-365 .
<https://doi.org/10.1080/00131881.2016.1220810>

Document status and date:

Published: 01/12/2016

DOI:

[10.1080/00131881.2016.1220810](https://doi.org/10.1080/00131881.2016.1220810)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

www.umlib.nl/taverne-license

Take down policy

If you believe that this document breaches copyright please contact us at:

repository@maastrichtuniversity.nl

providing details and we will investigate your claim.



Effects of support on stress and burnout in school principals

Simon Beusaert, Dominik E. Froehlich, Christelle Devos & Philip Riley

To cite this article: Simon Beusaert, Dominik E. Froehlich, Christelle Devos & Philip Riley (2016) Effects of support on stress and burnout in school principals, Educational Research, 58:4, 347-365, DOI: [10.1080/00131881.2016.1220810](https://doi.org/10.1080/00131881.2016.1220810)

To link to this article: <http://dx.doi.org/10.1080/00131881.2016.1220810>



© 2016 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 19 Aug 2016.



Submit your article to this journal [↗](#)



Article views: 408



View related articles [↗](#)



View Crossmark data [↗](#)

Effects of support on stress and burnout in school principals

Simon Beusaert^{a,d}, Dominik E. Froehlich^{b,d}, Christelle Devos^a and Philip Riley^c 

^aFaculty of Psychology and Educational Sciences, Université catholique de Louvain, Louvain-la-Neuve, Belgium; ^bDepartment of Education, University of Vienna, Vienna, Austria; ^cInstitute for Positive Psychology and Education, Australian Catholic University, Melbourne, Australia; ^dDepartment of Educational Research and Development, School of Business and Economics, Maastricht University, Maastricht, The Netherlands

ABSTRACT

Background: More than ever before, school principals are dealing with stress and burnout, resulting from increasing role demands and decreasing decision latitude and autonomy. Following the Demand–Support–Constraints model, reasons for stress and burnout can be found in the lack of social support in the environment.

Purpose: This longitudinal study investigates whether changes in social support from colleagues, supervisors and/or the broader community affect levels of principal stress and burnout.

Sample: Approximately 26% of Australia's school principals took part ($N = 3572$): primary ($n = 2660$) and secondary ($n = 912$) spread across all Australian states and territories. Age ranged between 46 and 55 years, and mean leadership experience was 12 years.

Design and methods: Since stress and burnout are psychological phenomena that develop over time, a longitudinal approach was adopted. Data were collected across four waves, spread over four years, from 2011 to 2014.

Results: It was found that social support predicts decreased stress and in turn burnout in school principals, however differences were found according to the type of social support. The data provide strong evidence for a positive effect of stress on burnout (e.g. the more stress at time 2, the more burnout in principals at time 3) and partial support for indirect negative effects of social support on burnout (e.g. the more support from colleagues at time 2, the less burnout in principals at time 3). However, we also found two instances of positive effects of social support from the broader community on burnout. This suggests that the more support principals receive from the broader community, the more likely they are to show burnout symptoms. This might be explained as the 'the downside of empathy', where principals who are strongly supported by their community might also feel more connected to that community. When their community is struggling, they are probably struggling as well.

Conclusions: The findings highlight the positive impact the wider school community can play in providing supplementary professional support to the principal. Unbundling or repackaging the job responsibilities with an administrative team that shares the leadership of the school, could be part of the solution.

ARTICLE HISTORY

Received 17 December 2015

Accepted 27 July 2016

KEYWORDS

Social support; stress; burnout; principals; demand–support–constraints model

Introduction

The tasks school principals¹ have to deal with are varied and numerous. They are responsible for managing the school, coordinating and guiding the teaching, networking with external partners and communicating with the parents. In addition, they are usually in charge of the administration and finances, personnel management and legally responsible for all issues that arise in their schools. Finally, they have a pedagogical role. Generally, they are accountable for the coherence between didactical methods and student learning, competency development and graduation profiles and evaluation. They must collaborate with education bureaucracies, undergo regular inspections and connect with other supporting services beyond the school itself and have a leading role in implementing innovations (Friedman 2002; Engels et al. 2008).

Next to this long, but by no means complete, list of tasks, many governments and jurisdictions are introducing policies that lead to greater standardisation. Often, high stakes national and state-wide tests are implemented in a drive towards continuous school improvement and accountability. There is also a move towards decentralisation and more autonomy, although it has been argued that the necessary resources are not always provided (Engels et al. 2008; Riley 2014). This increased autonomy brings higher demands and more responsibility and, it is argued, these can negatively impact principals' well-being (Friedman 2002; Engels et al. 2008; Olsen and Sexton 2009; Riley and Langan-Fox 2013). It is evident that good teachers do their best work in a school with good leadership (Leithwood, Louis, and Anderson 2012). So when evidence emerges that leaders are under considerable strain from rapidly changing roles and increased accountability, this gives real pause for thought (Matthews, Moorman, and Nusche 2008; Riley 2014; Riley and Langan-Fox 2013).

Since the 1970s, research attention has been paid to the antecedents and consequences of stress and burnout. Consequences of burnout include reduced productivity and working efficacy, presenteeism and absenteeism (PricewaterhouseCoopers Australia 2014), illness, casualties, psychopathology, and deterioration in social and family relationships (van Dick and Wagner 2001). If, as some researchers argue, school leaders are the second biggest influence on student outcomes behind the teacher (Day et al. 2008; Leithwood and Day 2008), when the leader is not functioning well, arguably the whole school suffers. In other words, 'If good leadership is at the heart of every good school, then a leader who is both mentally and physically unwell could have a potentially disastrous impact on the well-being of a school and those within it' (Phillips and Sen 2011, 180).

The antecedents of stress and burnout are categorised in two ways: individually and contextually related variables. Some of the individual variables studied are demographic, such as age, gender or marital status, personality, coping strategies or perceived self-efficacy. The most considered contextual variables are working or organisational characteristics, such as role stressors, working conditions, students behaviour, the need for professional recognition or prestige, level of specialisation, teacher–student ratio, lack of resources, relationship with colleagues and social support (Cano-García, Padilla-Muñoz, and Carrasco-Ortiz 2005). Social support has been shown to buffer stress, depression and burnout. For example, Sánchez-Moreno et al. (2014) analysed the relationship between burnout, informal social support and psychological distress in a sample of social workers in Spain. Their results confirmed the importance of informal social support as a variable negatively related to distress, even in the presence of burnout. In contrast, organisational variables were not related to

distress. Similarly, Ju et al. (2015) tested structural equation models and found significant negative relations between workplace social support and teacher burnout among 307 Chinese middle school teachers; concluding that social support can protect teachers from burnout. However, both studies had a cross-sectional design and were conducted with social workers and teachers and not with principals. In addition, social support is often measured in a more general way, not making a distinction between the types of social support offered by different groups of people.

Therefore, this longitudinal study aimed to examine how the contextual factor 'social support', or, more precisely, social support from colleagues, supervisor(s) and the broader school community, influenced stress and burnout in primary and secondary school principals. The data were collected across four waves, equally spread over four years (2011–2014). The research questions were: (1) How does social support from colleagues, supervisors and the community (at *t*1) influence the level of burnout (at *t*2, *t*3 and *t*4)? (2) How does social support from colleagues, supervisors and the community (at *t*1) influence the level of stress (at *t*2, *t*3 and *t*4)? (3) Does stress mediate the relation between social support and burnout? In contrast with previous research that focused on stress and burnout in teachers using cross-sectional designs, this study focuses on principals and takes a longitudinal approach. While school principals are similar to teachers working in the same high-demand, dynamic environment, they deal with quite different responsibilities and tasks. Therefore, research results on stress and burnout in teachers cannot be easily generalised to principals. In addition, the longitudinal approach allows us to study burnout over time and to get insight into how social support influences stress, feelings of depression and burnout over time. As burnout is a state of physical, mental and emotional exhaustion that develops over time, because of long-term involvement in work situations that are emotionally demanding (Evers, Tomic, and Brouwers 2005), a longitudinal approach across four years is an appropriate methodological approach. Finally, we wanted to examine separately different kinds of social support experienced by school principals: support from colleague principals, supervisor(s) and from the larger school community.

Burnout

A decade ago the OECD (2005) indicated that maintaining high-quality teachers in the profession was one of the biggest concerns for policy-makers across 25 countries. In the intervening years this concern has increased in many countries (OCED 2014). This has increased the performance pressure on teachers, which in turn leads to increases in perceived stress and burnout. In the Netherlands, for example, the prevalence of burnout is higher in the educational sector than in other sectors such as the hotel and catering industry, general industry, transport, the caring professions and the building industry (Evers et al. 2001). In the UK, stress levels among educators are thought to be the highest of all professions (Phillips and Sen 2011). In general, researchers agree that burnout is a common psychological negative phenomenon (Maslach 1982; Farber 1984). One of the most cited definitions is Maslach and Jackson's (1985, 837): 'Burnout is a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who do "people work" of some kind.' Emotional exhaustion entails a lack in energy. Depersonalisation refers to a detached attitude towards the job itself and/or the colleagues, sub- and super-ordinates. Reduced personal accomplishment indicates a decrease in feelings of achievement and

competence. For example, increased emotional exhaustion in principals might result in a lack of energy needed for doing their job. Consequently, they may develop a cynical attitude, (depersonalisation) towards their colleagues and their work and/or become dissatisfied with their performance on the job (reduced personal accomplishment: Fernet et al. 2012).

Other definitions of burnout, while not dissimilar, add to the overall picture. For example, Farber (1991) described burnout as a work-related syndrome where individuals perceive a significant discrepancy between effort (input) and reward (output), and which is related to physical exhaustion and different psychological symptoms such as irritation and lower self-esteem. Another conceptualisation of burnout was developed and validated by Demerouti et al. (2001, 2003). In line with Maslach's conceptualisation of 'Emotional exhaustion' and 'Depersonalization' they made a distinction between exhaustion and disengagement. However, Zapf et al. (1999) argue that those conceptualisations and related questionnaires take the amount of empathy and emotional involvement at work as given and that the questionnaires do not directly question these emotional aspects. This is problematic, since burnout might affect people's empathy and emotional involvement and both concepts should not be ignored when studying burnout. Therefore, in this study, we chose measures that included empathy and emotional involvement (see measures).

Social support

There are many antecedents of burnout that also require careful attention alongside stress (Friedman 2002). Previously it was concluded that job and environment-related factors are often more strongly related to burnout than personal-related antecedents (e.g. Maslach 1999). The *Demand–Support–Constraints model* (DSC model; Payne 1979) focuses on two of those environment-related factors, namely job demands and social support, to explain the origin of stress and burnout. According to the framework, a lack of support and resources in a demanding work setting leads to stress (Friedman 2002). In general, social support can be provided by different people both within and outside of the workplace. In this study, a distinction is made between three different sources of support: colleagues inside and outside the school; supervisor(s) and the broader school community, including parents, alumni, community leaders and school board members. In this context, 'colleagues outside the school' refers to other principals. In this study, supervisors are defined as the principals' line manager, usually in a regional office, but may also include the board chair for independent (private, fee paying) school principals. The broader community refers to the wider professional network of the principal mentioned above, including other principals, but also teachers, counsellors, parents and community leaders.

Similar to the DSC model, the *Job Demands–Resources model* (JD-R) also emphasises job demands and social support (Schaufeli and Bakker 2004). However, they refer to broader categories of job demands and job resources. Demands are 'those physical, social, or organisational aspects of the job that require sustained physical and/or psychological (i.e. cognitive or emotional) effort and are therefore associated with physiological and psychological costs' (Demerouti et al. 2001, 501). These include several aspects such as work overload, role problems, deficient equipment, school policies and climate, interpersonal conflicts, and student behavioural problems. Job resources are 'aspects of the job that may enhance motivation and performance. These function in at least one of three ways: by buffering job demands, supporting the achievement of work-related goals, or fostering learning and development'

(Klusmann et al. 2008, 130). For example, job resources refer to flexible schedules, skill utilisation, participation in decision-making, decision latitude, levels of autonomy, professional development, coaching, and support from colleagues (Fernet et al. 2012). Both the DSC and the JD-R model have been criticised for not making a more detailed distinction between different types of demands and support, as highlighted in job stress and burnout literature (Kahn and Byosiére 1992; Lee and Ashforth 1996).

Researchers have been validating the previously mentioned models by studying job demands (overload/workload, student behaviour, physical environment, role conflict, and role ambiguity) and relations with co-workers or social support on the job and their relation with burnout in various professions. However, only a few scholars have been studying these models in educational contexts. These few studies mostly tried to confirm the hypothesis that a school embedded in a broader community, characterised by supportive colleagues and cooperative relationships, might avoid burnout in teachers, in contrast with high job demands which are significantly negatively related to burnout (see the section on burnout and social support). Similarly, Maslach (1982) indicated that a lack of positive feedback and recognition might develop burnout. Furthermore, only a few studies have been looking into the relations between demands, support, stress and burnout in principals, discussed in the next paragraph.

Burnout and social support

In the few studies that examined the relationship between social support and burnout in principals, it was found that those who are less isolated are less likely suffer from burnout (Tomic and Tomic 2008; Stephenson and Bauer 2010). Başol (2013) compared levels of burnout among 306 school administrators in Turkey according to their gender and with social support as a covariate. The study concluded that social support explained the difference in burnout levels among administrators. Specifically, increased social support led to a decrease in occupational burnout. Stephenson and Bauer (2010) looked at the mediating role of isolation between social support and burnout in 196 elementary and secondary school principals in Louisiana. They found that isolation did mediate social support and therefore levels of physical and emotional burnout.

Similarly, in a study of teachers, Kahn et al. (2006) examined the relationship between the contents of emotional social support and job burnout among 339 high-school teachers in the US. They found that as positive emotional social support increased, emotional exhaustion and cynicism decreased, and professional efficacy increased. In contrast, when negative emotional social support increased, emotional exhaustion and cynicism also increased. Other researchers also found that perceived social support in general was associated with a lowered degree of burnout among elementary school teachers in Korea (Kim, Lee, and Kim 2009). Given these previous studies, the DSC model and the JD-R model – which both see social support as a contextual condition that positively influences psychological well-being – it is hypothesised that the more social support a principal experiences, the fewer burnout symptoms the principal will subsequently show.

H1: Social support (from colleagues, supervisor(s) and the larger community) reduces burnout in school principals.

Stress

The process of burnout begins with prolonged exposure to job demands, which are then interpreted by individuals as stress (Farber 1983; Friedman 1995; Maslach, Schaufeli, and Leiter 2001). The *Principal Health and Wellbeing Surveys* (www.principalhealth.org) indicated that in Western countries such as Australia and Ireland, school leaders are under significantly more stress than the general population. In the US, for example, the National Association of Elementary School Principals reported that 75% of principals experience stress-related symptoms that can affect their physical, emotional, and mental health (Queen and Schumacher 2006). To put this in a broader context, the APA (2010) reported that approximately 70% of Americans are stressed due to their work. Statistic Canada (2009) reported that 39% of employees are slightly stressed; 25% are somewhat stressed and 5% are extremely stressed at work.

Previously, also in an educational context, job stress in teachers has been defined as ‘the experience by a teacher of unpleasant emotions, such as tension, frustration, anxiety, anger and depression, resulting from aspects of his work as a teacher’ (Kyriacou 1987, 146). Gold and Roth (2013, 17) introduce three major aspects of stress: ‘(1) stress is triggered and sustained by the intellectual or cognitive processes a person chooses to use, (2) it is affected by the emotions we experience, and (3) it affects our physical condition or health’.

Stress is to be distinguished from *eustress* and *distress*. Selye (1964) was one of the first to discuss the difference between the three forms. While he defined stress as ‘...the non-specific response of the body to any demand placed upon it.’ (Selye 1987, 17), distress occurs when the body can no longer cope with the physiological and/or psychological demands. In other words, in the case of distress the employee needs to deal with too much or too few demands. In contrast, eustress refers to the optimal amount of stress, not too much and not too little. In sum, all stress is either distress or eustress. It is the degree of demand that determines if distress or eustress occurs (Le Fevre, Matheny, and Kolt 2003).

Although the definitions of stress and burnout are related, previous research found that stress and burnout are distinguishable concepts. Pines and Keinan (2005) found that burnout and strain are both adverse responses to job stressors, but that they have different antecedents, correlates and consequences. They conducted a path analysis based on a data-set with 1182 Israeli police officers, finding that job stressors were more highly correlated with stress than with burnout, while it was the other way around for job importance. Finally, burnout was more highly correlated with outcome variables such as job dissatisfaction, desire to leave the job, physical and emotional symptoms and perceived performance.

Stress, social support and burnout

Various researchers have been studying the antecedents of stress, and the impact of resources such as social support on the consequences of stress, such as burnout (Friedman 2002). Theoretical models of stress claim that the perceptions of resources, such as social support, along with the level of demand predict the experience of stress. For example, the cognitive transaction model of Lambert and McCarthy (2006) focused on teachers specifically. They argue that teachers evaluate stressful demands according to the available resources under their control. Also other theoretical models have been used to discuss the determinants of stress, such as the person–environment fit theory (Edwards et al. 1998); the cybernetic theory

(Cummings and Cooper 1998) and the control theory (Spector 1998; for a summary, see the article of Le Fevre, Matheny, and Kolt 2003). Across many nations, these theories have been studied in educational contexts, generally with teachers not principals (Ullrich, Lambert, and McCarthy 2012). More generally, previous studies found that social support has a positive influence on both the organisation and the psychological traits of the employee. At the same time support reduces the impact of negative factors (Marshall, Michaels, and Mulki 2007; Sawyer and Rimm-Kaufman 2007). Previous studies involving teachers and professionals in other sectors indicate that supportive informal social networks that offer guidance and reassure colleagues from time to time, can reduce professionals' level of stress, especially in rural areas where individuals might be more isolated (Russell, Altmaier, and Van Velzen 1987; Marshall, Michaels, and Mulki 2007; Sawyer and Rimm-Kaufman 2007).

With respect to the relationship between stress and burnout, in a schooling context, McCormick and Barnett (2011) investigated the link between burnout and Australian high-school teachers' perceptions of job stress ($n = 416$). They found that stress was mostly caused by the disruptive behaviour of students. Other sources of stress were related to the task (e.g. administrative paperwork), school (e.g. sense of community) and/or the larger system (e.g. reorganisations). Given previous research and the previously discussed DSC model and the JD-R model on the one hand, and the theoretical models on stress on the other, it is hypothesised that:

H2: Stress increases burnout in school principals.

H3: Social support (from colleagues, supervisor(s) and the larger community) reduces burnout indirectly by decreasing stress.

Purpose of the study

This study examines how social support (from colleagues, supervisors and the broader community) influences the level of stress and burnout in principals. The central research questions are: (1) How does social support from colleagues, supervisors and the community (at time 1 (t_1)) influence the level of burnout (at time 2 (t_2), time 3 (t_3) and time 4 (t_4))? (2) How does social support from colleagues, supervisors and the community (at t_1) influence the level of stress (at t_2 , t_3 and t_4)? and (3) Does stress mediate the relation between social support and burnout? Given previous research, mostly with teachers, it is hypothesised that:

- (1) Social support negatively influences burnout in principals.
- (2) Social support negatively influences stress in principals.
- (3) The relation between social support and burnout is mediated by stress. Higher levels of social support will influence principals' experience of stress and in turn, they will exhibit fewer burnout symptoms.

Since stress and burnout are psychological phenomena that develop over time, a longitudinal approach was adopted. Data were collected across four annual waves, spread over four years, from 2011 to 2014.

Method

Participants

Over the four years of the panel survey, responses have been collected from 3675 principals and deputy or assistant principals working in primary and secondary schools spread over all Australian states and territories. It is worth noting that not every school has a deputy/assistant principal, and many large schools have more than one. Our data include 10–15 schools each year where more than two leaders participated in the same year and 160–170 schools where two leaders (one principal and one deputy) participated. While, according to multilevel approaches, these responses are not termed ‘independent’, in this study design, we treated multiple responses from the same school as if they were independent in order to capture the personal perception of the support received that influences an individual’s level of (mental) well-being. The collected data represent approximately 26% of all principals in the country with 20–25% completing the survey each year. Very low rates of panel attrition have occurred across the study for the principals remaining in the role, which equals a retention rate of approximately 90%. However, there are high rates of retirement due to the high mean age of the cohort.

The sample for the study consisted of 3572 primary ($n = 2660$) and secondary ($n = 912$) school principals spread over all Australian states and territories at t1. Women represented 58% of the primary school principals and 50% of the secondary school principals. Most were aged between 46 and 55 (male and females 45%) or 56–65 (36 and 41%, respectively). On average, primary school principals had been in a leadership position (deputy/assistant or principal) for 13 years ($SD = 8$); secondary school principals for a slightly shorter length of time ($M = 12$, $SD = 8$ years). They were mainly working in Governmental schools (primary: 69%, secondary: 81%), but also in Catholic (primary: 16%, secondary: 9%) and independent schools (primary: 15%, secondary: 11%). Their schools were fairly well distributed over the ten deciles of the national socio-economic index, i.e. the Socio-Economic Indexes for Areas, which ranks areas in Australia according to their relative socio-economic advantage and disadvantage. The schools were mostly situated in suburban (primary: 40%, secondary: 38%), rural (primary: 27%, secondary: 20%), and urban locations (primary: 17%, secondary: 25%).

Procedure

The present study is drawn from a larger project investigating the health and well-being of Australian school principals (including deputy/assistant principals).² Participants voluntarily provided contact details to the researchers to be used for subsequent invitations. The invitations and reminder emails were sent out two weeks apart while the survey was open. The survey website opened for twelve weeks to collect each wave of data, from April to July in 2011 and from early July to late September in 2012–2014. All principals who completed the survey in Year 1 were invited in the subsequent years to complete an update survey.

Instruments

The scales used in the present study are presented below. All scales were taken from the Copenhagen Psychosocial Questionnaire (COPSOQ-II; [Pejtersen et al. 2010](#)). COPSOQ-II assesses a range of dimensions of the working psychosocial environment and the person’s

well-being. The psychometric qualities of this questionnaire have been demonstrated among large sample of participants from numerous occupations and countries (Nübling et al. 2006; Albertsen et al. 2010; Bjorner and Pejtersen 2010; Burr et al. 2010; Nuebling and Hasselhorn 2010; Pejtersen, Bjorner, and Hasle 2010; Thorsen and Bjorner 2010; Dupret et al. 2012).

We gauged three dimensions to measure social support resources: social support from colleagues (inside and outside school), from supervisors and from the broader community. Social support from colleagues inside the school refers to all other workers in the school: from the leadership team through to the school caretaker. Social support from colleagues outside the school refers to other principals, from other schools. In Australia there are regular regional/cluster group meetings and principals build strong networks among these colleagues. The broader community scale refers to the broader professional network, not only including other principals, but also teachers, counsellors, parents, and community leaders. We measured *social support from colleagues (inside and outside the school)* with six items (e.g. 'How often do you get help and support from colleagues outside your school?') on a 5-point Likert-scale (1 = 'Never/Hardly Ever' to 5 = 'Always'). At t_1 , three items that did not discriminate whether the source was inside or outside or school were used. Over all years, the scale achieved acceptable reliability ($\alpha = 0.76\text{--}0.77$). *Support from supervisor* and *support from the broader community* were measured with three items each (e.g. 'How often is your nearest superior willing to listen to your problems at work?' and 'Do you feel part of a community at your place of work?', respectively). Both scales were measured on a 5-point Likert-scale (1 = 'Never/Hardly Ever' to 5 = 'Always') and achieved good reliability in all years ($\alpha = 0.87\text{--}0.88$ and $0.80\text{--}0.83$, respectively).

We measured *burnout* (e.g. 'How often have you been emotionally exhausted') and *stress* (e.g. 'How often have you had problems relaxing?') with four items each. While the stress scale measured how tense, irritable and stressed people were, the burnout scale studied physical and emotional exhaustion and how often people felt tired. Both scales were answered using a 5-point Likert-scale (1 = 'Not at all' to 5 = 'All the time'). The scales achieved excellent reliability in all years ($\alpha = 0.91$ and $0.88\text{--}0.92$, respectively).

Analyses

We tested the hypotheses using a latent variable cross-lagged panel model approach using Maximum Likelihood estimation in Mplus 7.11 (Muthén and Muthén 2012). In total, we checked three competing models. We assessed model fit using chi square divided between degrees of freedom (χ^2/df , acceptable if between 2 and 3) root mean square error of approximation (RMSEA, acceptable if ≤ 0.08 ; Browne and Cudeck 1993), comparative fit index (CFI, acceptable if ≥ 0.90), and standardised root mean squared residuals (SRMR, acceptable

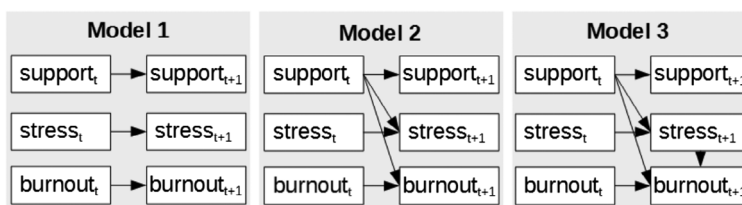


Figure 1. Overview of the models tested.

Table 1. Means (*M*), standard deviations (*SD*) and relationships between variables.

	Variable	M	SD	Variable																		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Col-league ₁	2.74	0.81																			
2	Col-league ₂	2.82	0.66	0.49																		
3	Col-league ₃	2.79	0.65	0.47	0.61																	
4	Col-league ₄	2.79	0.66	0.44	0.61	0.62																
5	Supervis ₁	2.94	0.97	0.42	0.24	0.24	0.21															
6	Supervis ₂	3.02	1.01	0.29	0.36	0.24	0.20	0.56														
7	Supervis ₃	3.13	1.04	0.20	0.20	0.26	0.15	0.48	0.62													
8	Supervis ₄	3.14	1.01	0.22	0.21	0.25	0.28	0.45	0.53	0.59												
9	Com-mun ₁	1.82	0.59	0.41	0.27	0.24	0.25	0.21	0.12	0.06	0.08											
10	Com-mun ₂	1.86	0.63	0.28	0.38	0.31	0.30	0.16	0.23	0.13	0.13	0.53										
11	Com-mun ₃	1.84	0.61	0.27	0.31	0.40	0.32	0.17	0.15	0.21	0.16	0.46	0.56									
12	Com-mun ₄	1.86	0.60	0.26	0.27	0.34	0.36	0.14	0.10	0.15	0.22	0.42	0.48	0.56								
13	Stress ₁	3.16	0.81	-0.25	-0.21	-0.22	-0.19	-0.20	-0.20	-0.12	-0.10	-0.27	-0.28	-0.27	-0.24							
14	Stress ₂	3.17	0.81	-0.17	-0.23	-0.19	-0.14	-0.12	-0.20	-0.12	-0.09	-0.22	-0.34	-0.27	-0.25	0.63						
15	Stress ₃	3.20	0.80	-0.16	-0.19	-0.22	-0.18	-0.12	-0.16	-0.19	-0.13	-0.16	-0.25	-0.32	-0.26	0.63	0.67					
16	Stress ₄	3.22	0.80	-0.12	-0.16	-0.21	-0.18	-0.08	-0.11	-0.14	-0.15	-0.16	-0.23	-0.25	-0.28	0.58	0.63	0.66				
17	Burnout ₁	2.78	0.87	-0.22	-0.16	-0.21	-0.14	-0.17	-0.16	-0.12	-0.09	-0.24	-0.22	-0.24	-0.16	0.74	0.54	0.53	0.51			
18	Burnout ₂	2.76	0.85	-0.12	-0.18	-0.16	-0.13	-0.10	-0.16	-0.12	-0.07	-0.16	-0.25	-0.21	-0.20	0.50	0.72	0.56	0.51	0.61		
19	Burnout ₃	2.83	0.86	-0.14	-0.18	-0.21	-0.18	-0.08	-0.14	-0.16	-0.11	-0.13	-0.19	-0.25	-0.22	0.52	0.54	0.76	0.57	0.61	0.64	
20	Burnout ₄	2.85	0.87	-0.11	-0.15	-0.17	-0.14	-0.08	-0.14	-0.14	-0.15	-0.10	-0.20	-0.20	-0.22	0.45	0.53	0.54	0.74	0.57	0.62	0.65

All relationships $p < 0.01$.

Table 2. Fit indices for the different models.

	Model 1	Model 2	Model 3
χ^2/df	2.60	2.59	2.24
RMSEA	0.03	0.03	0.03
CFI	0.94	0.94	0.95
TLI	0.93	0.93	0.95
SRMR	0.11	0.10	0.08

Table 3. Path estimates of the structural equation model.

Estimated path			Primary school			Secondary school		
From		To	β	SE	p	β	SE	p
<i>Autoregressive relationships</i>								
Colleague _{t1}	→	Colleague _{t2}	0.553	0.026	0.000	0.520	0.050	0.000
Colleague _{t2}	→	Colleague _{t3}	0.705	0.018	0.000	0.681	0.034	0.000
Colleague _{t3}	→	Colleague _{t4}	0.705	0.018	0.000	0.689	0.036	0.000
Supervis _{t1}	→	Supervis _{t2}	0.619	0.021	0.000	0.630	0.038	0.000
Supervis _{t2}	→	Supervis _{t3}	0.673	0.018	0.000	0.692	0.031	0.000
Supervis _{t3}	→	Supervis _{t4}	0.063	0.030	0.035	0.014	0.049	0.780
Commun _{t1}	→	Commun _{t2}	0.643	0.022	0.000	0.648	0.042	0.000
Commun _{t2}	→	Commun _{t3}	0.661	0.022	0.000	0.671	0.037	0.000
Commun _{t3}	→	Commun _{t4}	0.133	0.035	0.000	0.040	0.045	0.380
Stress _{t1}	→	Stress _{t2}	0.640	0.022	0.000	0.676	0.036	0.000
Stress _{t2}	→	Stress _{t3}	0.690	0.018	0.000	0.728	0.031	0.000
Stress _{t3}	→	Stress _{t4}	0.697	0.018	0.000	0.724	0.031	0.000
Burnout _{t1}	→	Burnout _{t2}	0.276	0.027	0.000	0.396	0.047	0.000
Burnout _{t2}	→	Burnout _{t3}	0.306	0.024	0.000	0.369	0.048	0.000
Burnout _{t3}	→	Burnout _{t4}	0.346	0.025	0.000	0.385	0.045	0.000
<i>Relationships with stress</i>								
Colleague _{t1}	→	Stress _{t2}	0.046	0.041	0.261	0.039	0.065	0.542
Supervis _{t1}	→	Stress _{t2}	−0.029	0.031	0.336	0.041	0.053	0.439
Commun _{t1}	→	Stress _{t2}	−0.090	0.033	0.007	−0.182	0.055	0.001
Colleague _{t2}	→	Stress _{t3}	−0.009	0.028	0.741	−0.053	0.049	0.283
Supervis _{t2}	→	Stress _{t3}	−0.043	0.025	0.090	−0.038	0.043	0.378
Commun _{t2}	→	Stress _{t3}	−0.074	0.028	0.009	0.002	0.052	0.964
Colleague _{t3}	→	Stress _{t4}	−0.031	0.028	0.275	−0.136	0.050	0.006
Supervis _{t3}	→	Stress _{t4}	−0.004	0.026	0.867	0.057	0.048	0.231
Commun _{t3}	→	Stress _{t4}	−0.031	0.031	0.305	0.010	0.059	0.867
<i>Relationships with burnout</i>								
Colleague _{t1}	→	Burnout _{t2}	0.003	0.035	0.930	−0.011	0.056	0.852
Supervis _{t1}	→	Burnout _{t2}	0.023	0.027	0.382	0.018	0.044	0.686
Commun _{t1}	→	Burnout _{t2}	0.066	0.028	0.021	0.060	0.047	0.199
Stress _{t2}	→	Burnout _{t2}	0.649	0.023	0.000	0.567	0.043	0.000
Colleague _{t2}	→	Burnout _{t3}	−0.051	0.023	0.026	−0.133	0.042	0.002
Supervis _{t2}	→	Burnout _{t3}	0.023	0.021	0.264	−0.021	0.036	0.570
Commun _{t2}	→	Burnout _{t3}	0.076	0.023	0.001	0.120	0.043	0.005
Stress _{t3}	→	Burnout _{t3}	0.651	0.022	0.000	0.560	0.044	0.000
Colleague _{t3}	→	Burnout _{t4}	0.034	0.023	0.151	−0.027	0.046	0.559
Supervis _{t3}	→	Burnout _{t4}	−0.029	0.022	0.173	−0.009	0.042	0.837
Commun _{t3}	→	Burnout _{t4}	0.059	0.025	0.018	−0.039	0.051	0.449
Stress _{t4}	→	Burnout _{t4}	0.591	0.022	0.000	0.531	0.038	0.000

if ≤ 0.08 ; Hu and Bentler 1999; Byrne 2010). Missing data were handled using full information maximum likelihood estimation (Enders 2010), which is a common method in structural equation modelling (Dong and Peng 2013).

Results

Table 1 shows the means and standard deviations of all concepts under study and the correlations between them. While all of the relationships are statistically significant, we observe stronger relationships of the variables with themselves across time (autocorrelation, e.g. colleague_{t1} and colleague_{t2} : $r = 0.49, p < 0.01$) and between burnout and stress (e.g. stress_{t1} and burnout_{t1} : $r = 0.74, p < 0.01$).

We tested three models. For all models, the error terms between the measures over time were allowed to correlate. Model 1 contains autoregressive paths only. Model 2 adds social support_{*t*} (from colleagues; supervisor(s); and the broader community) as predictors for stress_{*t+1*} and burnout_{*t+1*}. Model 3 builds on Model 2 and adds stress_{*t*} as a predictor of burnout_{*t*}. The models are summarised in Figure 1.

As shown in Table 2, Model 3 achieved the best model fit ($\chi^2/\text{df} = 2.24$, RMSEA = 0.026 with 90% CI [0.026, 0.027], CFI = 0.950, SRMR = 0.077, TLI = 0.945) and was used to test the hypotheses. All standardised factor loadings of the measurement model were ≥ 0.60 .

Table 3 shows the path coefficients for Model 3. In general, the model explains a large part of the variance of burnout across the measurement points for both primary ($R^2 = 0.64$ – 0.72) and secondary school principals ($R^2 = 0.68$ – 0.70). We found strong autoregressive effects among all variables. Additionally, we noted negative cross-lagged relationships of social support_{*t*} on stress_{*t+1*}.

As hypothesised in Hypothesis 1, we found small negative relationships of social support from colleagues (at $t2$) on burnout (at $t3$) for both primary ($\beta = -0.05, p \leq 0.01$) and secondary school principals ($\beta = -0.13, p \leq 0.01$). However, these relationships were not significant for any other measurement point. We found positive relationships between social support from the broader community and burnout at $t1$ (primary school principals: $\beta = 0.07, p \leq 0.05$), $t2$ (primary school principals: $\beta = 0.08, p \leq 0.01$; secondary school principals: $\beta = 0.12, p \leq 0.01$), and $t3$ (primary school principals: $\beta = 0.06, p \leq 0.05$). This positive relationship, instead of a negative one, which is more pronounced for primary school principals than for secondary school principals, does not support the hypothesis.

In support of Hypothesis 2, we found strong positive relationships between stress_{*t*} and burnout_{*t*} for both primary and secondary school principals across all points of measurement (stress_{*t2*} \rightarrow burnout_{*t2*} ($\beta = 0.65, p \leq 0.01$; $\beta = 0.57, p \leq 0.01$, respectively), stress_{*t3*} \rightarrow burnout_{*t3*} ($\beta = 0.65, p \leq 0.01$; $\beta = 0.56, p \leq 0.01$, respectively), and stress_{*t4*} \rightarrow burnout_{*t4*} ($\beta = 0.59, p \leq 0.01$; $\beta = 0.53, p \leq 0.01$)).

In partial support of Hypothesis 3, we found small negative indirect relationships between social support_{*t*} and burnout_{*t+1*} via stress_{*t+1*}. Specifically, social support_{*t*} from the broader community showed significant negative indirect relationships with burnout_{*t+1*} at time 1 (primary school principals: $\beta = -0.06, p < 0.01$; secondary school principals: $\beta = -0.10, p < 0.01$) and time 2 (primary school principals: $\beta = -0.05, p < 0.01$). Furthermore, social support from colleagues at time 3 had a significant negative relationship with burnout at time 4 among the secondary school principals ($\beta = -0.07, p < 0.01$).

Discussion

Burnout in principals is a well-known problem in the educational sector, sometimes with extreme consequences. It leads to a reduced performance, reduced initiative and creativity

and increased drop-out and absenteeism (Timms, Brough, and Graham 2012). In the past, researchers tried to identify factors influencing teachers', and to a lesser extent, principals' risk of burnout with an eye to prevention. Maslach (1999) distinguished between individual and contextual determinants, concluding that the contextual determinants might negatively influence burnout. As suggested in literature and in line with the Job Demands–Constraint model, this study took previous research a step further by focusing on one specific environmental condition, namely social support. In addition, this study unravelled multiple facets of social support by making a distinction between support from colleagues both inside and outside the school, and support from supervisors and the broader community. Finally, we took a longitudinal perspective, since burnout is assumed to develop over time, measuring all variables under study at four different points in time, spread across four years.

We hypothesised that social support would have both direct effects (Hypotheses 1 and 2) and indirect effects via stress on burnout (Hypothesis 3).

The data provide strong evidence for a positive effect of stress on burnout and partial support for indirect negative effects of social support on burnout. As hypothesised in Hypothesis 1, a negative effect of social support from colleagues (at t_2) on burnout (at t_3) was found, for both primary and secondary school principals. In line with Hypothesis 2, there were strong positive effects of stress _{t} on burnout _{t} across all points of measurement. Finally, in partial support of Hypothesis 3, a negative indirect effect of social support _{t} on burnout _{$t+1$} via stress _{$t+1$} was confirmed.

In general, these results are in line with the DSC model (Payne 1979) and the JD-R model that states that the lack of support in a high-demanding environment leads to stress and burnout (Friedman 2002). This study supported the findings by Fernet et al. (2012) on teachers, as we found that when principals lack or lose social support from colleagues, they will be more likely to burnout over time. However, at the same time our findings suggest that social support might also buffer burnout. Similarly, previous research on burnout among teachers found that greater co-worker support lead to decreased depersonalisation and increased feelings of accomplishment (Greenglass, Burke, and Konarski 1997). Betoret (2009) also researched 724 primary and secondary school teachers in Spain and found that job stressors have a significant positive effect on teachers' burnout. Finally, our findings are in line with previous longitudinal studies (e.g. Fernet et al. 2012) looking into how burnout in teachers develops over time. As with teachers, burnout in principals can be predicted by how they perceive social support from colleagues.

However, in contrast to Hypothesis 1, social support from colleagues on burnout was not significant for any other measurement point, but for t_2 (support from colleagues) and t_3 (burnout). These results seem to suggest that social support from colleagues cannot always buffer burnout in principals and might interact with other contextual and individual factors, such as national policy, job pressure, task demands and motivation. Trépanier et al. (2014), for example, identified a significant relationship between job demands and burnout in teachers. In addition, it was found that passion (i.e. both harmonious and obsessive passion) partially mediates the relationship between demands and burnout. Another study conducted by Fernet et al. (2012), also focussing on teachers, indicated that autonomous motivation negatively predicts emotional exhaustion, one of the three burnout components. Self-efficacy predicted all three components of burnout significantly negatively.

An interesting finding was two instances of positive effects of social support from the broader community on burnout. This suggests that the more support principals receive from

the broader community, the more likely they are to show burnout symptoms. This finding stands in contrast to previous findings with teachers (e.g. Fernet et al. 2012) and our hypothesis. A possible explanation for this unexpected finding might be what we call 'the downside of empathy'. Principals who feel supported by their community might also feel more connected to that community and therefore more vulnerable to the stresses of that community. If circumstances mean the community is struggling, the principal is perhaps more likely to be struggling as well. The fact that this effect is stronger for principals working in primary than secondary schools seems to support our hypothesised explanation. Often primary principals are part of a smaller community than secondary principals. When you are part of a smaller community, you might more easily feel connected to the community and consequently be more easily affected by their struggles.

Finally, concerning the mediation effect, social support from the broader community showed significant negative indirect relationships with burnout at time 1 (in primary and secondary education) as well as at time 2 (in primary education). Next, social support from colleagues at time 3 had a significant negative relationship with burnout at time 4 among the secondary school principals. However, while stress is significantly negatively related to burnout at all times (for both primary and secondary principals), this is not the case for the paths going from social support to stress. Also this finding might suggest that stress cannot be buffered by social support alone, but also depends on other contextual and individual factors. It might be the case that some years were more stressful than others because of innovation, policy changes, personal circumstances, etc. In line with previous remarks and although significantly negative relations were found, the effect sizes were rather small, perhaps due to some of the confounding variables that we could not control in this research.

Limitations of the current study and pathways for future research

This study has several findings that lead to suggestions for future research. First, since previous research indicated the importance of focusing on specific determinants, we decided to study different types of social support. Our study found differential effects for three types of social support on stress and burnout in principals. This seems to indicate that making a distinction between different types of social support to predict burnout is relevant. The results show that support from colleagues and to a lesser, but still significant extent, support from supervisors might buffer stress and burnout in primary and secondary school principals. In contrast, feeling strongly connected to a broader community might even negatively predict stress and burnout in principals. Future qualitative research could study the underlying reasons for the results we found in more detail. For example, how is it possible that principals who feel connected to a broader community feel more stressed and show more burnout, when social support predicts lowering of both?

Second, future research could take this study one step further by studying, for example, the role of other resources of social support such as social support from parents of children in the school. Future studies could also further unravel other antecedents and examine different types of job demands, i.e. quantitative, emotional, and cognitive demands. Also, other environment-related antecedents could be studied, such as educational policy, to have a more complete picture of environmental antecedents of burnout in principals.

In addition, it might be the case that the influence of particular antecedents on burnout is different depending on the burnout component. We used the COPSOQ II questionnaire

for measuring burnout, including emotional exhaustion. The COPSOQ II contains a one-dimensional, shorter questionnaire than the Maslach Burnout Inventory (MBI: 1996). However, it is not able to make a distinction between the three dimensions of burnout: emotional exhaustion, depersonalisation and personal accomplishment. Future research could repeat our study and make use of the MBI for measuring burnout to study the relationship between the three dimensions.

Third, the questionnaire measuring social support wanted to map principals' resources for social support (e.g. 'How often do you get help and support from colleagues outside the school?'). However, it is possible that participants who were in need of support and therefore made more use of these resources, responded more positively than principals who did not really feel the need and did not look for support, although they are people with a high social capital and high support resources. In other words, it is possible that the scale measured if participants take advantage of available support rather than if they can rely on support resources. In future studies a more explicit distinction could be made.

Fourth, the study is based on a large sample of 3572 Australian principals in primary and secondary schools, which make the findings applicable to the target population. However, the question remains whether the findings may be also generalised to principals in other countries. Since each country has its own set of educational policies and systems, this requires further testing. Therefore, we suggest that future research might replicate this study in other countries.

Practical implications

The multiple and various demands on principals, in combination with the dominating image that principals have to carry all the burdens of managing a school, make it seem an impossible, often isolated job (Grubb and Flessa 2006). Therefore, having some emotional and task-related support in the environment might be welcome. The results of this study highlight the importance of having social support from colleagues to deal with the daily burden of work and prevention of burnout in the long run. This could be achieved by investing in the set-up or maintenance of (online) communities of principals in which task- and emotional-related support can be found. Another way of addressing the increased demands could be by restructuring principals' tasks. Pounder and Merrill (2001) argue that unbundling or repackaging the job responsibilities with an administrative team that shares the leadership of the school could be a solution. In light of these suggestions they talk about 'co-principalship' in which leadership is shared between two people. While this might appear to be an expensive solution, it may turn out to be the only real way to deal with the ever-increasing demands and complexity of the role.

Conclusion

This longitudinal research with four measurements, spread over four years, studied the effect of social support from colleagues, supervisors and the larger educational community on stress and burnout in school principals. It was relevant to study multiple facets of social support, since results differ according to the type of support. It was hypothesised that social support would have both direct effects on stress and burnout (Hypotheses 1 and 2) as indirect effects via stress on burnout (Hypothesis 3). The data provide strong evidence for a

positive effect of stress on burnout and partial support for indirect negative effects of social support on burnout. Future qualitative research is needed to explain further the relationships found.

Notes

1. Terminology is varied and in some countries this job is referred to as 'head teacher' or similar. Also, the specific job responsibilities of the school principal or head teacher do vary between educational systems.
2. Details on the whole project, annual reports and the complete survey can be found at www.principalhealth.org.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Philip Riley  <http://orcid.org/0000-0002-3323-5805>

References

- Albertsen, K., R. Rugulies, A. H. Garde, and H. Burr. 2010. "The Effect of the Work Environment and Performance-based Self-Esteem on Cognitive Stress Symptoms among Danish Knowledge Workers." *Scandinavian Journal of Public Health* 38 (3 Suppl): 81–89.
- APA (American Psychological Association). 2010. *Stress in America Findings*. <http://www.apa.org/news/press/releases/stress/national-report.pdf>.
- Başol, G. 2013. "A Comparison of Female and Male School Administrators' Burnout Levels Controlling for Perceived Social Support." *Education and Science/Eğitim Ve Bilim* 38 (169): 3–18.
- Betoret, F. D. 2009. "Self-Efficacy, School Resources, Job Stressors and Burnout among Spanish Primary and Secondary School Teachers: A Structural Equation Approach." *Educational Psychology* 29 (1): 45–68.
- Bjorner, J. B., and J. H. Pejtersen. 2010. "Evaluating Construct Validity of the Second Version of the Copenhagen Psychosocial Questionnaire through Analysis of Differential Item Functioning and Differential Item Effect." *Scandinavian Journal of Public Health* 38 (3 Suppl): 90–105.
- Browne, M. W., and R. Cudeck. 1993. "Alternative Ways of Assessing Model Fit." In *Testing Structural Equation Models*, edited by K. A. Bollen and J. S. Long, 136–162. Newbury Park, CA: Sage.
- Burr, H., K. Albertsen, R. Rugulies, and H. Hannerz. 2010. "Do Dimensions from the Copenhagen Psychosocial Questionnaire Predict Vitality and Mental Health over and above the Job Strain and Effort – Reward Imbalance Models?" *Scandinavian Journal of Public Health* 38 (3 Suppl): 59–68.
- Byrne, B. M. 2010. *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*. 2nd ed. New York: Taylor & Francis Group.
- Cano-García, F. J., E. M. Padilla-Muñoz, and M. Á. Carrasco-Ortiz. 2005. "Personality and Contextual Variables in Teacher Burnout." *Personality and Individual Differences* 38: 929–940.
- Cummings, T. G., and C. L. Cooper. 1998. "A Cybernetic Theory of Organizational Stress." In *Theories of Organizational Stress*, edited by C. L. Cooper, 101–121. New York: Oxford University Press.
- Day, C., P. Sammons, D. Hopkins, K. Leithwood, and A. Kington. 2008. "Research into the Impact of School Leadership on Pupil Outcomes: Policy and Research Contexts." *School Leadership and Management* 28 (1): 5–25.
- Demerouti, E., A. B. Bakker, F. Nachreiner, and W. B. Schaufeli. 2001. "The Job Demands-resources Model of Burnout." *Journal of Applied Psychology* 86 (3): 499–512.

- Demerouti, E., A. B. Bakker, I. Vardakou, and A. Kantas. 2003. "The Convergent Validity of Two Burnout Instruments." *European Journal of Psychological Assessment* 19: 12–23.
- van Dick, R., and U. Wagner. 2001. "Stress and Strain in Teaching: A Structural Equation Approach." *British Journal of Educational Psychology* 71: 243–259.
- Dong, Y., and C.-Y. J. Peng. 2013. "Principled Missing Data Methods for Researchers." *SpringerPlus* 2 (222): 1–17.
- Dupret, E., C. Bocerean, M. Teherani, M. Feltrin, and J. H. Pejtersen. 2012. "Psychosocial Risk Assessment: French Validation of the Copenhagen Psychosocial Questionnaire (COPSOQ)." *Scandinavian Journal of Public Health* 40 (5): 482–490.
- Edwards, J. R., R. D. Caplan, and R. Van Harrison. 1998. "Person-environment Fit Theory: Conceptual Foundations, Empirical Evidence, and Directions for Future Research." In *Theories of Organizational Stress*, edited by C. L. Cooper, 28–67. New York: Oxford University Press.
- Enders, C. K. 2010. *Applied Missing Data Analysis*. New York: Guilford Press.
- Engels, N., G. Hotton, G. Devos, D. Bouckennooghe, and A. Aelterman. 2008. "Principals in Schools with a Positive School Culture." *Educational Studies* 34 (3): 159–174.
- Evers, W. J., A. Brouwers, W. Tomic, and H. van Alphen. 2001. "Self-efficacy en burnout bij leraren in het Studiehuis." [Self-efficacy and Burnout among Teachers of the Study-home]. *Pedagogische Studiën* 78: 169–183.
- Evers, W. J., W. Tomic, and A. Brouwers. 2005. "Constructive Thinking and Burnout among Secondary School Teachers." *Social Psychology of Education* 8: 425–439.
- Farber, B. A. 1983. "A Critical Perspective on Burnout." In *Stress and Burnout*, edited by B. A. Farber, 1–22. New York: Pergamon.
- Farber, B. 1984. "Teacher Burnout: Assumptions, Myths, and Issues." *The Teachers College Record* 86 (2): 321–338.
- Farber, B. A. 1991. *Crisis in Education: Stress and Burnout in the American Teacher*. San Francisco, CA: Jossey-Bass.
- Fernet, C., F. Guay, C. Senécal, and S. Austin. 2012. "Predicting Intraindividual Changes in Teacher Burnout: The Role of Perceived School Environment and Motivational Factors." *Teaching and Teacher Education* 28 (4): 514–525.
- Friedman, I. A. 1995. "Student Behavior Patterns Contributing to Teacher Burnout." *The Journal of Educational Research* 88: 281–289.
- Friedman, I. A. 2002. "Burnout in School Principals: Role Related Antecedents." *Social Psychology of Education* 5: 229–251.
- Gold, Y., and R. A. Roth. 2013. *Teachers Managing Stress & Preventing Burnout*. New York: Routledge.
- Greenglass, E. R., R. J. Burke, and R. Konarski. 1997. "The Impact of Social Support on the Development of Burnout in Teachers: Examination of a Model." *Work and Stress* 11 (3): 267–278.
- Grubb, W. N., and J. J. Flessa. 2006. "A Job Too Big for One: Multiple Principals and Other Nontraditional Approaches to School Leadership." *Educational Administration Quarterly* 42 (4): 518–550.
- Hu, L., and P. M. Bentler. 1999. "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives." *Structural Equation Modeling: A Multidisciplinary Journal* 6 (1): 1–55.
- Ju, C., J. Lan, Y. Li, W. Feng, and X. You. 2015. "The Mediating Role of Workplace Social Support on the Relationship between Trait Emotional Intelligence and Teacher Burnout." *Teaching and Teacher Education* 51: 58–67.
- Kahn, R. L., and P. Byosiére. 1992. "Stress in Organizations, Vol 3." In *Handbook of Industrial and Organizational Psychology*, edited by M. D. Dunnette and L. M. Hough, 571–650. Palo Alto, CA: Consulting Psychologists Press.
- Kahn, J. H., K. T. Schneider, T. M. Jenkins-Henkelman, and L. L. Moyle. 2006. "Emotional Social Support and Job Burnout among High-school Teachers: Is It All due to Dispositional Affectivity?" *Journal of Organizational Behavior* 27 (6): 793–807.
- Kim, M. Y., J. Y. Lee, and J. Kim. 2009. "Relationships among Burnout, Social Support, and Negative Mood Regulation Expectancies of Elementary School Teachers in Korea." *Asia Pacific Education Review* 10 (4): 475–482.

- Klusmann, U., M. Kunter, U. Trautwein, O. Lüdtke, and J. Baumert. 2008. "Engagement and Emotional Exhaustion in Teachers: Does the School Context Make a Difference?" *Applied Psychology* 57 (s1): 127–151.
- Kyriacou, C. 1987. "Teacher Stress and Burnout: An International Review." *Educational Research* 29: 146–152. doi:10.1080/0013188870290207.
- Lambert, R. G., and C. J. McCarthy. 2006. *Understanding Teacher Stress in an Age of Accountability*. Greenwich, CT: Information Age.
- Le Fevre, M., J. Matheny, and G. S. Kolt. 2003. "Eustress, Distress, and Interpretation in Occupational Stress." *Journal of Managerial Psychology* 18 (7): 726–744.
- Lee, R. T., and B. E. Ashforth. 1996. "A Meta-analytic Examination of the Correlates of the Three Dimensions of Job Burnout." *Journal of Applied Psychology* 81 (2): 123.
- Leithwood, K., and C. Day. 2008. "The Impact of School Leadership on Pupil Outcomes." *School Leadership and Management* 28 (1): 1–4.
- Leithwood, K. A., K. S. Louis, and S. E. Anderson. 2012. *Linking Leadership to Student Learning*. San Francisco, CA: Jossey-Bass.
- Marshall, G. W., C. E. Michaels, and J. P. Mulki. 2007. "Workplace Isolation: Exploring the Construct and Its Measurement." *Psychology and Marketing* 24 (3): 195–223.
- Maslach, C. 1982. "Understanding Burnout: Definitional Issues in Analyzing a Complex Phenomenon." In *Job Stress and Burnout*, edited by W. S. Paine, 29–40. Beverly Hills, CA: Sage.
- Maslach, C. 1999. "Progress in Understanding Teacher Burnout." In *Understanding and Preventing Teacher Burnout*, edited by R. Vandenberghe and A. M. Huberman, 211–222. Cambridge: Cambridge University Press.
- Maslach, C., and S. E. Jackson. 1985. "The Role of Sex and Family Variables in Burnout." *Sex Roles* 12: 837–851.
- Maslach, C., W. B. Schaufeli, and M. P. Leiter. 2001. "Job Burnout." *Annual Review of Psychology* 52 (1): 397–422.
- Matthews, P., H. Moorman, and D. Nusche. 2008. "Building Leadership Capacity for System Improvement in Victoria, Australia". In *Improving School Leadership. Volume 2: Case Studies on System Leadership*, edited by Beatriz Pont, Deborah Nusche, and David Hopkins, 179–213. <http://www.oecd.org/edu/school/44375122.pdf>.
- McCormick, J., and K. Barnett. 2011. "Teachers' Attributions for Stress and Their Relationships with Burnout." *International Journal of Educational Management* 25 (3): 278–293.
- Muthén, L. K., and B. O. Muthén. 2012. *Mplus User's Guide*. Los Angeles, CA: Muthén and Muthén.
- Nübling, M., U. Stöbel, H. M. Hasselhorn, M. Michaelis, and F. Hofmann. 2006. "Measuring Psychological Stress and Strain at Work-evaluation of the COPSOQ Questionnaire in Germany." *GMS Psycho-Social Medicine* 3: 1–14.
- Nuebling, M., and H. M. Hasselhorn. 2010. "The Copenhagen Psychosocial Questionnaire in Germany: From the Validation of the Instrument to the Formation of a Job-specific Database of Psychosocial Factors at Work." *Scandinavian Journal of Public Health* 38 (3 Suppl): 120–124.
- OECD (Organisation for Economic Co-operation and Development). (2014). *TALIS 2013 Results: An International Perspective on Teaching and Learning, TALIS*. http://www.oecd-ilibrary.org.ezproxy1.acu.edu.au/education/talis-2013-results_9789264196261-en.
- OECD (Organisation for Economic Co-operation and Development). 2005. *Teaching Matter: Attracting, Developing and Retaining Effective Teachers*. Accessed October 27, 2005. <http://www.oecd.org/edu/teacherpolicy>
- Olsen, B., and D. Sexton. 2009. "Threat Rigidity, School Reform, and How Teachers View Their Work inside Current Education Policy Contexts." *American Educational Research Journal* 46: 9–44.
- Payne, R. L. 1979. "Demands, Supports, Constraints and Psychological Health." In *Response to Stress: Occupational Aspects*, edited by C. J. Mackay and T. Cox, 85–105. London: International Publishing Corporation.
- Pejtersen, J. H., J. B. Bjorner, and P. Hasle. 2010. "Determining Minimally Important Score Differences in Scales of the Copenhagen Psychosocial Questionnaire." *Scandinavian Journal of Public Health* 38 (3 Suppl): 33–41.

- Pejtersen, J. H., T. S. Kristensen, V. Borg, and J. B. Bjorner. 2010. "The Second Version of the Copenhagen Psychosocial Questionnaire." *Scandinavian Journal of Public Health* 38 (3 Suppl): 8–24.
- Phillips, S., and D. Sen. 2011. "Stress in Head Teachers." In *Handbook of Stress in the Occupations*, edited by J. Langan-Fox and C. L. Cooper, 177–201. Cheltenham: Edward Elgar.
- Pines, A. M., and G. Keinan. 2005. "Stress and Burnout: The Significant Difference." *Personality and Individual Differences* 39 (3): 625–635.
- Pounder, D. G., and R. J. Merrill. 2001. "Job Desirability of the High School Principalship: A Job Choice Theory Perspective." *Educational Administration Quarterly* 37 (1): 27–57.
- PricewaterhouseCoopers Australia. (2014). Creating a Mentally Healthy Workplace: Return on Investment Analysis. <http://www.headsup.org.au/creating-a-mentally-healthy-workplace/the-business-case>.
- Queen, J. A., and D. Schumacher. 2006. "A Survival Guide for Frazzled Principals." *Principal*: 18–23. <https://www.naesp.org/resources/2/Principal/2006/N-Dp18.pdf>.
- Riley, P. 2014. "The Complexities of School Leadership: Many Boundaries to Cross." In *Boundary-Spanning in Organizations: Network, Influence, and Conflict*, edited by J. Langan-Fox and C. L. Cooper, 185–205. London: Routledge.
- Riley, P., and J. Langan-Fox. 2013. "Bullying, Stress and Health in School Principals and Medical Professionals: Experiences at the 'Front-Line'." In *Human Frailties: Wrong Turns on the Road to Success*, edited by R. Burke, C. L. Cooper, and S. Fox, 181–200. London: Gower.
- Russell, D. W., E. Altmaier, and D. Van Velzen. 1987. "Job-Related Stress, Social Support, and Burnout among Classroom Teachers." *Journal of Applied Psychology* 72 (2): 269–274. doi: 10.1037/0021-9010.72.2.269.
- Sánchez-Moreno, E., I. N. D. L. F. Roldán, L. P. Gallardo-Peralta, and A. B. L. de Roda. 2014. "Burnout, Informal Social Support and Psychological Distress among Social Workers." *British Journal of Social Work* 45: bcu084.
- Sawyer, L. B. E., and S. E. Rimm-Kaufman. 2007. "Teacher Collaboration in the Context of the Responsive Classroom Approach." *Teachers and Teaching* 13 (3): 211–245.
- Schaufeli, W. B., and A. B. Bakker. 2004. "Job Demands, Job Resources, and Their Relationship with Burnout and Engagement: A Multi-sample Study." *Journal of Organizational Behavior* 25 (3): 293–315.
- Selye, H. 1964. *From Dream to Discovery*. New York: McGraw-Hill.
- Selye, H. 1987. *Stress without Distress*. London: Transworld.
- Spector, P. E. 1998. "A Control Theory of the Job Stress Process." In *Theories of Organizational Stress*, edited by C. L. Cooper, 153–169. New York: Oxford University Press.
- Statistic Canada. (2009). *Environmental and Workplace Health*. <http://www.statcan.gov.gc.ca/start-debut-eng.htm>.
- Stephenson, L. E., and S. C. Bauer. 2010. "The Role of Isolation in Predicting New Principals' Burnout." *International Journal of Education Policy and Leadership* 5 (9): 1–17.
- Thorsen, S. V., and J. B. Bjorner. 2010. "Reliability of the Copenhagen Psychosocial Questionnaire." *Scandinavian Journal of Public Health* 38 (3 Suppl): 25–32.
- Timms, C., P. Brough, and D. Graham. 2012. "Burnt-out but Engaged: The Co-existence of Psychological Burnout and Engagement." *Journal of Educational Administration* 50 (3): 327–345.
- Tomic, W., and E. Tomic. 2008. "Existential Fulfillment and Burnout among Principals and Teachers." *Journal of Beliefs and Values* 29: 11–27.
- Trépanier, S. G., C. Fernet, S. Austin, J. Forest, and R. J. Vallerand. 2014. "Linking Job Demands and Resources to Burnout and Work Engagement: Does Passion Underlie These Differential Relationships?" *Motivation and Emotion* 38: 353–366.
- Ullrich, A., R. G. Lambert, and C. J. McCarthy. 2012. "Relationship of German Elementary Teachers' Occupational Experience, Stress, and Coping Resources to Burnout Symptoms." *International Journal of Stress Management* 19 (4): 333–342. doi:10.1037/a0030121.
- Zapf, D., C. Vogt, C. Seifert, H. Mertini, and A. Isic. 1999. "Emotion Work as a Source of Stress: The Concept and Development of an Instrument." *European Journal of Work and Organizational Psychology* 8 (3): 371–400.